What is claimed is:

1. A modified lithium ion polymer battery, comprising a positive electrode sheet a, a negative electrode sheet b, and a separation membrane c, wherein said positive and negative electrode sheets a and b are formed by blending a binder with positive electrode powder and coating the resulting blend on a copper foil or an aluminum foil used as the collector, wherein said binder can be prepared from the following three components:

(a) 0.5 wt%~95wt% of polyvinylidene fluoride;

(b) 0.1wt%~90wt% of a modified polyacrylates;

(c) 0.1 wt%~85wt% of a modified polyethylene or polydienes;

alone, or from any two of them in a proper ratio, or all of these three components in a proper ratio; wherein said positive and negative electrode sheets are laminated with a separation membrane to form a overlap sheet or roll in a alternative and isolation manner; said positive and negative collectors are welded , respectively; and the whole laminate is assembled with an aluminum plastic membrane.

2. A polymer battery as in claim 1, wherein said separation membrane is a non-porous polyalkylene oxide film or a film made by coating a blend of polyalkylene oxide and polyvinylidene fluoride (PVDF), or a micro-porous polypropylene film, or a three-layered composite film of polypropylene/ polyethylene/polypropylene.

3. A polymer battery as in claim 2, wherein said separation membrane is produced from polymethyl methacrylate and polyvinylidene fluoride.

4. A polymer battery as in claim 1, wherein said modified polyacrylates is a substance made by co-polymerizing more than 60 wt% of a carboxylic acid or carboxylic acid ester as the major constituent selected from a group consisting of acrylonitrile,2-ethylhexyl acrylate ,acrylic acid, methacrylic acid, methyl acrylate, methyl methacrylate, ethyl acrylate, butyl acrylate, butyl methacrylate, ethyl acrylate, propyl acrylate, acrylamide, vinyl acetate, dodecyl acrylate, octadecyl acrylate, hydroxyethyl acrylate, hydroxypropyl acrylate, itaconic acid and the like; and 0~40 wt% of a second constituent selected from styrene and butadiene, into a copolymer, and subsequently neutralizing part or all of the carboxylic groups on said copolymer.

5. A polymer battery as in claim 1, wherein said active material used in the positive electrode of the modified lithium ion polymer battery according to the invention is a composite oxide of lithium and transition metals, such as $LiCoO_2$, $LiMn_2O_4$, $LiNiO_2$, $LiNi_xCo_{1-x}O_2$ and the like; and the active materials used in the negative electrode of the modified lithium ion polymer battery according to the invention is carbon powder, such as mesophase carbon micro-beads (MCMB), natural graphite and modified products thereof, petroleum coke and modified products thereof, as well as hard carbon materials.

6. A polymer battery as in claim 1, wherein said electrolyte is prepared by mixing a lithium salt selected from the group consisting of $LiPF_6$, $LiAsF_6$, $LiClO_4$, $LiN(CF_3SO_2)_2$, $LiBF_4$, $LiSbF_6$, $LiCF_3SO_3$ and the like; an organic solvent selected from the group consisting of ethylene carbonate, propylene carbonate, dimethyl carbonate, diethoxyethane, diethyl carbonate, dimethoxyethane, dipropyl carbonate and the like; and a co-polymer.

7. A polymer battery as in claim 6, wherein the concentration of said lithium salt in said electrolyte is 0.1~2 M.